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THE UNION STATION DISTRICT FIRE
CHICAGO, ILLINOIS

MARCH 15, 1922

Courtesy of Chicago Daily News Co.

View 3 a. m. Ruins and Burlington building aflame.

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THE
UNION STATION DISTRICT FIRE
CHICAGO, ILLINOIS

MARCH 15, 1922

SUMMARY

The most serious fire experienced in the City of Chicago in recent years, the cause of which, according to the proceedings before the City Council, was spontaneous combustion of oily rags, occurred on the morning of March fifteenth, 1922, in the Union Station District just west of the Chicago River. Rapidly developing into conflagration proportions it completely destroyed seven brick buildings, one to eight stories in height, of which several were equipped with sprinkler systems, and seriously damaged six others, including the sixteen-story modern fire-resistive Burlington Office Building. The area swept by fire included the greater portion of one city block and sections of two others; this area being bounded by West Jackson Boulevard on the north, West Harrison Street on the south, South Clinton Street on the east, and South Jefferson Street on the west, and it has been suggested that the office building may have acted as a barrier to prevent further spread of the fire west. The estimated property loss approximates $7,500,000 with insurance of approximately $3,000,000; in addition to this was the loss of railroad records and drawings, not included in the vaults, the intrinsic value of which cannot be estimated.

DESCRIPTION OF BUILDINGS IN THE BURNED AREA

517-31 West Jackson Boulevard:

Two two-story and basement joisted brick buildings, with unprotected window openings, located on the southeast corner of West Jackson Boulevard and South Clinton Street, occupied by stores, restaurant and light manufacturing tenants, including a manufacturer of lamp fixtures and art shades. THE FIRE IS SUPPOSED TO HAVE STARTED IN ONE OF THESE BUILDINGS AND THEY WERE THE FIRST TO BE DESTROYED.

Austin Buildings—306-18 South Canal Street and 311-19 South Clinton Street:

A group of four brick buildings, two fronting on Clinton Street and two on Canal Street, separated by blank fire wall and space. Buildings were

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East view of the modern fire resistive Burlington building, after the fire.

seven and eight stories in height with basements; of substantial joisted and semi-mill construction, with numerous floor openings in addition to inadequately enclosed stairs and elevators. Communications between buildings were protected by fair double fire doors, but mutual exposure between buildings was severe due to unprotected windows. Exterior unprotected openings in north wall faced an unsprinklered two-story joisted building 10′ distant, and an eight-story sprinklered building 5′ distant. Buildings were occupied by approximately sixty light manufacturing tenants, including metal workers and printers. Private protection was chiefly afforded by a wet and dry pipe automatic sprinkler system, grading fixed by Chicago Board of Underwriters as 50% of standard. The total water supply for sprinklers consisted of about 29,000 gallons in gravity and pressure tanks, and four steamer connections were available, but this was not considered adequate for the class of construction and the number of heads. Central Station Watch Service maintained. THESE BUILDINGS WERE COMPLETELY DESTROYED.

Atlantic Building—501-15 West Jackson Boulevard:

This building was eight stories and basement in height, of good semi-mill brick construction with steel frame and enclosed vertical openings. Exposed openings south and west were protected by wired glass in metal frames. Building was occupied by various light manufacturing tenants and was equipped with an automatic sprinkler system grading 90% of standard. The water supply approximated 26,000 gallons in gravity and pressure tanks and two Siamese connections were available for the use of the City Fire Department. THIS BUILDING WAS COMPLETELY DESTROYED.

C. B. & Q. R. R., General Office Building—541-55 West Jackson Boulevard:

This building is a skeleton steel frame structure, sixteen stories high, with two basements, covering an area of approximately 23,000 square feet. Walls are brick curtains, faced and trimmed with glazed white terra-cotta. Floors for most part are 1″ wood surface on a cinder concrete grouting carried on flat hollow tile arches; approximately every third floor is 3′ 8″ thick with the cinder grouting carried on tile laid on edge supported on flat hollow tile arches. Roof is tar and gravel on flat tile arches. All structural steel members tile protected, except columns are concrete covered with outside facing of hollow tile. Stairs and elevators enclosed in tile and brick shafts, wired glass paneled metal doors to floors except Meeker type on freight elevator; partitions mainly of 3 and 4″ hollow tile. An exterior brick court with wired glass metal frame windows south, extends from second floor up. Plain glass windows in wooden frames in exterior walls face streets north and east. Wired glass windows in metal frames face Elevated Railway structure on the south and lower brick buildings across alley at the west.

Building is occupied principally for railroad office purposes, with power plant located in sub-basement. Various floors equipped with vaults of con-

crete and tile construction for storage of valuable records. Private fire protection consists of inside standpipe and hose equipment supplied by house pumps, and supply of chemical extinguishers. THIS BUILDING WAS SERIOUSLY DAMAGED AND CONTENTS DESTROYED ON ALL FLOORS ABOVE THE EIGHTH, EXCEPT FOR CONTENTS WITHIN THE FIREPROOF VAULTS AND ON 16TH FLOOR (SO-CALLED ROOFHOUSE).

Elevated Railway Station and Platforms:

This structure was of steel and wood, with brick ticket office below track level. Steel canopy, over platforms of wooden planking, was carried on unprotected steel beams and columns. CANOPY AND WOODWORK WAS PARTIALLY DESTROYED AND STEEL TRACK TRESTLE BADLY DAMAGED IN PLACES.

331-3 South Clinton Street:

A small five-story and basement brick building of joisted construction occupied by various manufacturing tenants. UPPER FLOORS GUTTED.

500-30 West Van Buren Street:

A solid row of small two-story joisted brick store buildings. SLIGHT DAMAGE ONLY.

519-31 West Van Buren Street and Rear:

A group of four-story and basement joisted brick buildings occupied by various light manufacturing tenants. Exposed wall openings were unprotected. Rear sections equipped with deficient sprinkler system. Fire evidently started in this building from flying brands. BUILDINGS BADLY DAMAGED.

PUBLIC FIRE PROTECTION

Forty-two double and triple fire hydrants are supplied by 4, 6, 8, 12 and 16″ water mains, cross-connected and fed from the Harrison Street, Chicago Avenue and Fourteenth Street Pumping Stations, under pressure of approximately thirty pounds. Steamers, gasoline pumps and fire boats are relied on for pressure. Gamewell fire alarm system.

WEATHER CONDITIONS

Mild temperature prevailed, atmosphere was clear with very light breeze from the northeast.

TIME

First alarm received 12:50 A. M., Wednesday, March 15, 1922.

STORY OF THE FIRE

The cause of the fire has been laid to spontaneous combustion of oily rags. It is reported as originating on the second floor of the two-story building at the corner of Jackson Boulevard and Clinton Street, and as far as is known there was no one in the premises at the time. The fire was discovered by either

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VALVE & FITTINGS CO.
CHICAGO

a fireman or watchman of the Austin Buildings, thru attention being drawn to the operation of the sprinkler alarm indicating that heat had already operated the sprinkler system in this building. Fire alarm was immediately turned in thru both an A.D.T. watch box and a city fire alarm box nearby. One of the regular fire companies on duty in the immediate district had just been called out to Canal and Adams Streets, and special calls were sent for companies in adjacent districts—the first arriving approximately four minutes after the alarm.

The department commenced work on the second floor of the two-story building, the fire having already worked down to the first floor and communicated to the seven-story building directly south. In a few minutes this building had become entirely aflame and the fire was spreading thru the windows in the open court to the eight-story buildings on Canal Street. The fire, now beyond control, played against the wired glass windows 5′ north in the south wall of the Atlantic Building, the transmitted heat being so intense, that a large number or possibly all of the sprinkler heads were opened at once, and altho the fire department connected up to the Siamese, the water supply was of no avail, and building was destroyed.

Members of the fire department state that within twenty minutes after the arrival of the first companies the front wall of the seven-story building on Clinton Street fell, but that before this occurred the radiated heat was beginning to affect the upper floors of the Burlington Building across the street. The department coupled up hose to the standpipe Siamese on the Clinton Street front of the Burlington Building and ran out the inside hose on several of the lower floors; meanwhile the building engineer had started the pumps in the basement, but soon after, the collapse of the walls of the Austin Buildings into the street, forced them to abandon their connections. They then concentrated their efforts on the inside equipment, running hose lines from Jackson Boulevard to the eighth floor, the heat having already ignited the window frames in the east wall and communicated to the contents on all floors above the eighth. The heat affected a few places in the floors below the eighth, but where it did gain entrance it was effectually checked. On the upper floors, however, the fire gained great headway burning itself out after consuming all interior combustible trim, including floor surfacing and nailing strips; also contents with the exception of that in the vaults, and that in sixteenth floor, which is in effect a roof house with no exposed exterior wall openings. The stair and elevator shafts do not show evidence of having carried fire from floor to floor; in fact, during the height of the fire the stair shafts were safely used by the firemen, who passed up and down from bottom to top of the building.

In addition to igniting and partially destroying the Elevated Railway platform and structure, including the ticket office immediately south of the Austin Buildings, the damage further extended to a five-story building on the east side of Clinton Street just south of the elevated structure and the fire practically gutted two buildings and damaged others immediately south of Van Buren Street, presumably having been communicated to these buildings by fire brands. It is interesting to note, at this point, that the two-story buildings on the north side of Van Buren Street were passed over and left practically undamaged. By 2 A. M. the Austin Buildings and Atlantic Building were smouldering ruins.

EFFECTS OF THE FIRE ON MODERN FIRE-RESISTIVE CONSTRUCTION

The Burlington General Office Building of modern fire-resistive construction located in an environment of buildings of far inferior construction with highly combustible and hazardous occupancies, experienced a tremendous test of its fire-resisting qualities, both as to the interior and the exterior, the result of which affords an excellent example for study. It was exposed to the full heat on the upper floors, and it is doubtful whether many of the so-called fireproof buildings in this part of the country could have withstood the attack as well. The building was attacked in its most vulnerable point—the ordinary glass windows facing an 80′ street—an exposure which had been considered far less serious that that offered to many similar type buildings in the Chicago "Loop".

Practically everything of a combustible nature above the eighth floor aside from contents in vaults and in the especially enclosed room, top floor, was completely destroyed, the destruction extending even to the metal furniture and file cases; yet the terrific heat retained within the enclosing walls, failed to break thru the tile floors and ceilings. There was no communication of fire from floor to floor thru the wired glass paneled metal doors of stair and elevator enclosures, altho the wired glass in some instances finally softened and partially fell out. The insulating materials of concrete and tile used for protecting the structural steel columns were seriously damaged in places, but they prevented the heat from reaching the steelwork.

The glazed terra-cotta facing of the north and east walls is badly cracked and for the most part probably will have to be replaced. The west wall facing, as well as that on all three sides of the exterior court, will probably need to be replaced from the eighth story up, due to the lapping of the fire thru the window openings. Windows in the latter walls were of wired glass but failed to withstand the heat blast from the burning contents and were completely destroyed.

Destruction of the 3 and 4″ hollow tile room partitions for the most part is complete, the pipe shafts, conduits and plumbing above the eighth floor are ruined. The sixteenth story with no exposed exterior wall openings, is untouched, and the elevator machinery here is undamaged.

CONCLUSIONS

Altho complete information on some phases of the fire is unavailable, the following conclusions can be drawn:

1. Standard fire-resistive structures, of which the Burlington Building is one type, are entirely vindicated; probably none of the other types would have as well withstood the intense heat to which this building was subjected.

2. Wired glass in metal frame sash is effective for protection against moderate exposure fires, but is not adequate for resisting sustained high temperatures. Double protection comprising a combination of wired glass

windows with outside standard steel shutters, or wired glass windows with a sprinkler curtain provided with unlimited water supply, is necessary to furnish the required resistance under circumstances similar to that to which the Burlington Building was exposed. Probably nothing less than a solid brick wall with no openings, could possibly have withstood the fire occurring in the exceptionally combustible interior of the adjacent buildings, to which the south and west walls of the Atlantic Building were subjected.

3. It was conclusively demonstrated that the width of the ordinary street is no barrier to the spread of fire where high buildings are involved, and the thoro protection of all exposed openings on street sides should be carefully considered in the erection of fire-resistive structures.

4. From the standpoint of protection against interior fires communicating from floor to floor thru windows of an open court, this fire showed that all such windows should be protected.

5. Enclosure of vertical floor openings, such as stairs and elevators, in fire-resistive shafts is thoroughly justified, but the use of wired glass panels in doors should be discouraged or reduced to a minimum, and transom lights should not be installed.

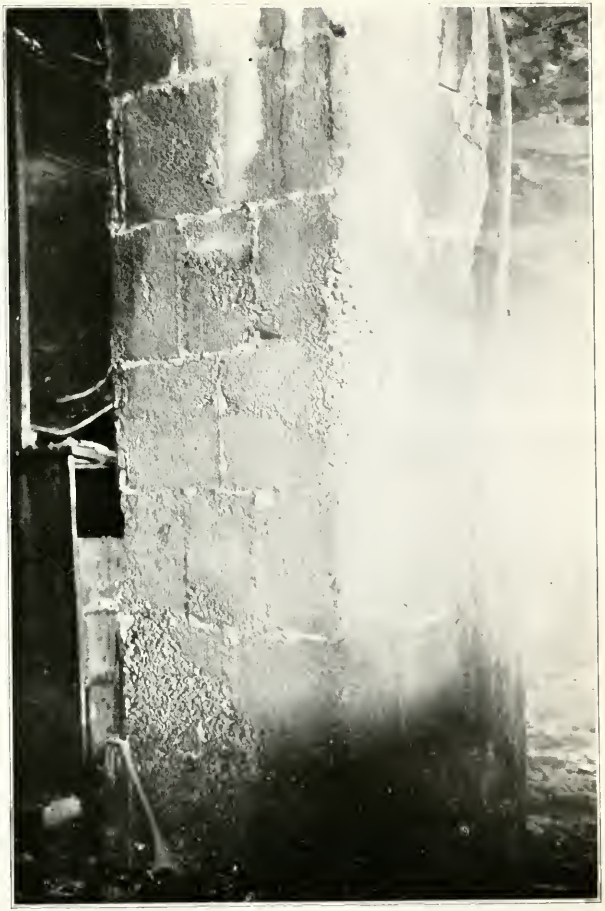
6. The use of wooden floor surfaces and combustible interior trim, doors and window framing, in fire-resistive construction should be discouraged, and all combustible material should be eliminated wherever possible. It might be advisable to arrange floors to drain to scuppers in exterior walls.

7. This fire demonstrated the necessity of having heavy fireproof constructed vaults for the storage of important records. The vault walls in this building were of two layers of 3″ hollow tile with an interior wall between of 6″ reinforced concrete and floors were specially reinforced. The fire in some instances completely scaled the outer layer of tile, but failed to get beyond the concrete and the records within the vaults were undamaged. There is no question that vaults of ordinary tile construction, such as are commonly found in many office buildings, would have been completely destroyed, as is evidenced by the destruction of a great many of the tile room partitions.

8. There are in many cases documents and files which cannot be conveniently housed in vaults, but must occupy space in the open, and some thought should be extended to enclosing these in approved insulated cabinets either of portable or permanent type. To eliminate as far as possible the amount of combustible material, the use of ordinary metal files and metal furniture in place of wood should be encouraged, but these should not be considered as a safeguard against serious fire.

9. Automatic sprinklers, even though reinforced by water from outside steamer connections, are not effective against exceptionally severe exposure fires, as was demonstrated again by the complete failure of the excellent system installed in the Atlantic Building. This failure was

Typical of cast window openings above eighth floor.



One of the many columns. Note tile covering destroyed. Little or no effect on the concrete protection.

caused, no doubt, by the opening of a large number of heads from the transmission of heat across a 5' areaway thru wired glass windows in the long south wall which were exposed to sustained temperature of unusual intensity.

10. Had the fire originated within one of the sprinklered buildings, assuming that the system was in operative condition, it probably would have been checked in the early stages, for in spite of the fact that the equipment in the Austin Buildings was considered below standard by the Chicago Board of Underwriters, its record was extremely good. Perhaps more fires have occured and been successfully checked by the Sprinkler Equipment in these buildings than in any other risks of similar occupancy in Chicago during a like period of time.

Southwest corner of one of the upper floors, showing collapse of window frames.

Wired glass and metal doors on passenger elevator shaft.

Doors to stair shaft. Glass in most cases melted out. Similar results all floors; both stairways.

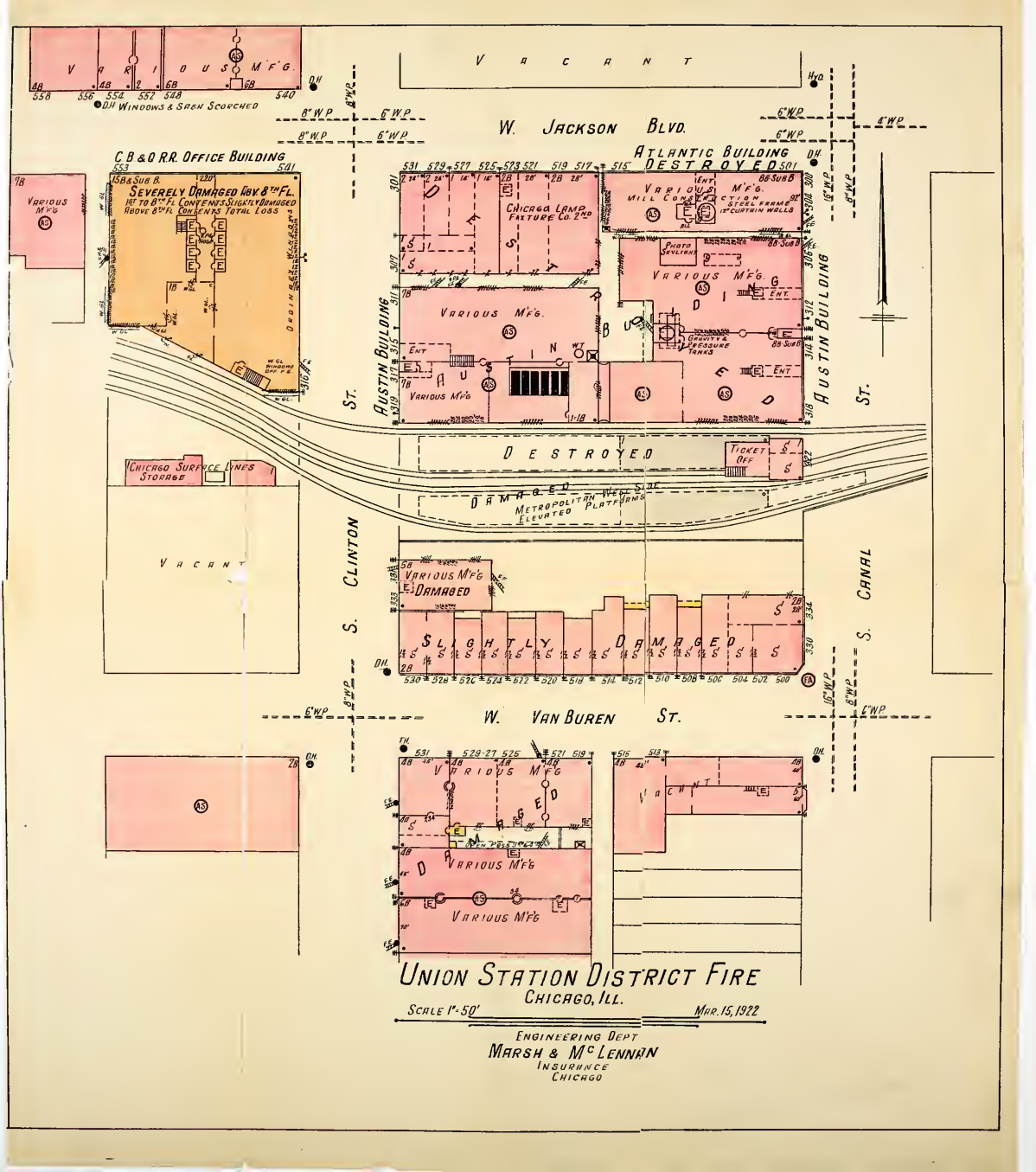
Court wall.

President's private office.

A few tile room partitions that were not leveled. Note fracture of water pipe, presumably through expansion.

Typical view of damage to interior.

Metal file cases and contents.


VARIOUS M'F'G.
DH WINDOWS & SASH SCORCHED
VACANT
W. JACKSON BLVD.
C.B.&Q.R.R. OFFICE BUILDING
SEVERELY DAMAGED 6TH FL.
1ST TO 6TH FL. CONTENTS SLIGHTLY DAMAGED
ABOVE 8TH FL. CONTENTS TOTAL LOSS
ATLANTIC BUILDING
DESTROYED
VARIOUS M'F'G.
MILL CONSTRUCTION STEEL FRAME 12" CURTAIN WALLS
CHICAGO LAMP & FIXTURE CO. 2ND
PHOTO SKYLIGHT
DRY PIPE PRESSURE TANKS
AUSTIN BUILDING
ST.
DESTROYED
TICKET OFF.
CHICAGO SURFACE LINES STORAGE
DAMAGED
METROPOLITAN WEST SIDE ELEVATED PLATFORMS
S. CLINTON
S. CANAL
VARIOUS M'F'G.
DAMAGED
SLIGHTLY DAMAGED
W. VAN BUREN ST.
VACANT
UNION STATION DISTRICT FIRE
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